

Ethyl chloride has several advantages: it has a pleasant odor; it takes only a short time to induce anesthesia with it; the vapor does not irritate the respiratory passages. For these reasons and on account of its simplicity of administration it reduces to a minimum injurious emotional stimuli. Patients rarely struggle against ethyl chloride. This is an advantage especially in cases of abdominal or thoracic visceral injury.

After induction by this method the anesthetist may choose the best method for continuance of anesthesia.

HAIR-BALL TUMOR OF THE STOMACH.

By ADOLPH BERG, M. D., San Francisco.

The finding of a hair-ball tumor or trichobezoar in a human being is rare enough to be reported. The death rate is high and in the present case the true condition was overlooked by several physicians in this city and Denver, Colo., after a history of hair eating had been given to them by members of the family. Butterworth, in what is probably the best article written on the subject, hoped in the future to make a diagnosis before operation, but as I have not seen any more reports from him, he should at least be given the credit for suggesting the correct diagnosis.

Hair-ball tumors or bezoars are not uncommon among animals, as "hair-licks" are frequently found in cattle, but the practice of swallowing hair in great amounts in the human race is rare. Bezoars may be formed of hair or vegetable fibers or they may be composed of lime or magnesium phosphate as found in the wild goat of Persia. The latter are called the Oriental bezoars and have been used for their supposed medicinal value.

Mrs. X, age 24 yrs., has gained 20 pounds since her marriage one year ago. No children. No miscarriages. The past 10 years she has suffered from attacks of vomiting and abdominal pain lasting three to five weeks and accompanied by great emaciation. The last attack occurred two years ago. She has enjoyed fairly good health in the interims. She could usually feel a freely movable mass in different parts of the abdomen.

Menorrhagia and metrorrhagia were especially marked in the spells of vomiting.

The most frequent diagnoses have been appendicitis, one or both kidneys movable and uterine fibroids, and various operations were proposed.

Owing to the conflicting diagnoses operation was refused.

March 23rd, 1914. Patient is suffering severe intermittent pains in epigastrium and vomiting. She has not been feeling well and has vomited several times the past three weeks. Palpation of any part of the abdomen causes pain in epigastrium. Muscles of upper abdomen rigid and no mass can be outlined. Uterus small and freely movable. Fetid breath. Tongue coated. Temperature 99.5°. Pulse 120. Leukocytes 11,000. Urine negative. One grain opium suppositories gave only slight relief.

March 24th, 1914, 8 a. m. Severe pains and vomiting. No bowel movements from enemas. No relief from hot bath. 8 p. m. Fairly comfortable day but towards evening vomiting of much frothy mucous and severe pains. Patient very weak. Whole abdomen distended and rigid. Tumor not palpable. Temp. 101.5° F. Pulse 126. Refused to submit to an exploratory operation. Further questioning brought out the suggestion

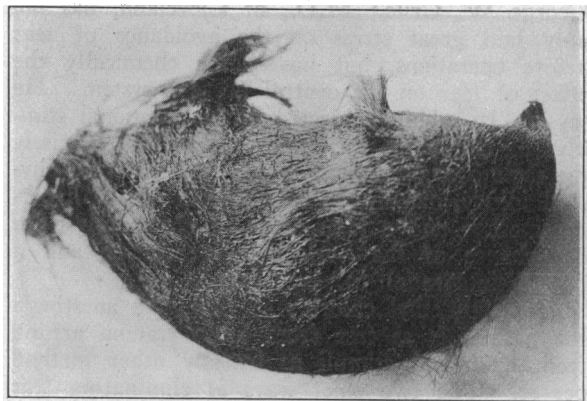
from the mother "if hair eating could in any way cause the pain?" A positive diagnosis of hair tumor was made and consent was given to operate.

Patient stated that a few years ago she passed, per rectum, a small hair-ball with long strands of hair attached. She has frequently found hair in the vomitus.

The suggestion that hair eating could have anything to do with her illness had been laughed at so much by most of her physicians that no mention was made of it before this time.

She was given a hypodermic of $\frac{1}{4}$ gr. morphine and when she reached the hospital the entire abdomen was relaxed. The lower border of a smooth, hard mass was felt lying transversely high and deep under the left costal arch.

Operation at St. Joseph's Hospital 11 p. m. Dr. Roy H. Morris assistant. Median epigastric incision. A tumor was found lying in or back of the stomach. The mass was with much difficulty dislodged as it was tightly wedged against the esophageal opening. The stomach was somewhat dilated and showed several striae similar to those of pregnancy. The intestines were distended and congested. A vertical incision from the greater to the lesser curvature of the stomach disclosed a very foul smelling yellowish fluid which was swabbed out together with some loose hair. Some difficulty was experienced in keeping the stomach walls against the gauze pads to prevent the fluid entering the peritoneal cavity in the manipulations of removing the hair mass. The mucous membrane was normal in appearance.



A search for intestinal hair-balls was unsuccessful and was greatly interfered with by the intestinal distension. The uterus was small and adnexa normal.

The stomach incision was closed in two layers and reinforced by a serous stitch, using a running plain catgut suture throughout. The abdominal wound was closed with catgut and a few deep silkworm sutures. The next morning the nurse reported finding fine hair particles in the glass of water used for washing the patient's teeth. Only a slight retching followed the operation. Beef tea was given on the second day and solid food on the fourth.

The abdominal wound suppurated in a few days probably due to the breaking down of fat and slight soiling of operative field by stomach contents. The pus was foul smelling like that of a colon infection.

Operative wound was healed and patient left the hospital on the 14th day. She has had several attacks of diarrhea and many small fine hairs have been found in the stools. (May 28th.) She states that the hair eating habit has been cured.

The hair mass is a perfect cast of the stomach with a saucer-like depression at the esophageal end. The mass was smooth but some hair was torn out by the tenaculum in the attempts to deliver it from the stomach. Most of the hair

pulled out show it to consist of lengths of $\frac{1}{2}$ to 1 inch and closely packed to about the hardness of a baseball. Weight in moist condition, 16 ounces. Length 6 inches and circumference at the middle, 9 inches.

Heazlitt reports hair-ball tumors having been found in about 70 cases, 42 of which came to operation, the remainder being found at autopsy. Most of the cases were operated on for other conditions and in only 10, including his own, was the diagnosis made before operation. He removed a hair-ball from the stomach but in a few days he had to perform a second operation at which he removed a hair-ball at the ileo-cecal orifice to which he attributed all of the original symptoms.

The ages of occurrence have been from 8 to 37 years. The weight of hair tumors has reached six and one-half pounds. O'Hara states that about one-half die from perforation.

In J. Knowsley Thornton's case the two-pound hair mass extended well into the duodenum and esophagus and he remarks that if the tumor had remained much longer the diagnosis could easily have been made as it would have presented itself at the mouth.

Excepting two or three cases hair eaters are generally of sound mind, the insane usually swallowing also foreign bodies. The patient of this report was intelligent, but during such periods as hard study in high school, would bite off the ends of her hair and swallow it, more than at other times.

Several have mentioned the vomiting of frothy mucous. The tumor in this patient was wedged so tightly against the cardiac end of the stomach that all the mucous must have been secreted in the esophagus, also the vomiting differed entirely from the foul smelling stomach contents.

Fenwick thinks that small hair concretions are probably not infrequently the cause of obstinate constipation in children, but later as the hair is worn in the adult style the habit of hair eating is discontinued and any concretions are gradually evacuated.

The diagnosis is of some importance for if the tumor is firmly fixed it might easily be mistaken for an inoperable carcinoma unless gastrotomy was done and the stomach explored.

Diagnosis—1 Age and sex. Usually occurs in young females. 2 Duration of complaint. This is seldom less than 10 years. In one case reported by Russell a woman aged 31 years died following an abortion and at autopsy a four and one-half-pound hair tumor was found dragging the stomach into the pelvis. The tumor had been growing 17 years and the patient had enjoyed normal health.

3 Physical characters of tumor. They are smooth and the hardness is striking, and are usually freely movable. 4 History of hair eating. This may be denied, especially in children, through fear. The vomitus and stools should be examined and it may be of some value to also examine the water used for washing the teeth.

The X-ray has been used successfully in making the diagnosis in one case, in which three hair masses

were found in the stomach. In the other case the X-ray, following the administration of bismuth, "showed a beautiful picture of a tumor occupying the whole stomach and extending into the duodenum," but the exact nature of the tumor was not diagnosed before the operation.

I am indebted to Dr. P. H. Mattner for the photograph.

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INTRANASAL OPERATION FOR DACRYOSTENOSIS, WITH CASE HISTORIES.*

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In presenting this subject to you my object is to bring out in discussion the advantages and disadvantages of this method of treatment for the relief of dacryostenosis. In an article published in the CALIFORNIA STATE JOURNAL OF MEDICINE for January, 1914, I have described the procedures as practised at the present time, particularly that of West and Bryan.

The operation consists of making an artificial opening from the lacrimal sac into the nose, as in the majority of cases the stricture is located at the junction of the sac with the duct.

Under cocaine and adrenalin anesthesia the mucous membrane and periosteum of the area immediately in front of the anterior end of the middle turbinate are raised in the form of a quadrilateral flap, with its attachment below and turned down over the inferior turbinate. This will expose the bony nasal wall of the lacrimal fossa. With appropriate chisels or burs the bone is removed till the sac with its membranous attachments is clearly exposed. This is firmly grasped with forceps and a piece from its nasal wall excised. Before the mucous membrane is replaced in position, a piece of the flap at its postero-superior angle is cut away so as to leave the opening into the sac free. The nose is then packed with gauze which is left in place till the following day when it is removed.

The sac is irrigated daily until healing is complete when it will be found that a permanent opening exists and the condition cured.

To prove that drainage is free a $\frac{1}{2}\%$ solution of fluorescein is dropped into the eye. A piece of cotton which has been placed in the nose at the site

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